

Title (en)

APPARATUS AND METHOD FOR LIQUID METALS TREATMENT

Title (de)

VORRICHTUNG UND VERFAHREN ZUR BEHANDLUNG VON FLÜSSIGMETALLEN

Title (fr)

APPAREIL ET PROCÉDÉ DE TRAITEMENT DE MÉTAUX LIQUIDES

Publication

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Application

EP 11773809 A 20110916

Priority

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Abstract (en)

[origin: WO2012035357A1] This invention relates to an apparatus (high shear device) and method for treating liquid metals by intensive melt shearing. The apparatus comprises a stator and a rotor with a small gap between them to provide intensive melt shearing for dispersing efficiently and distributing uniformly gas, liquid and solid phases in liquid metals without severe turbulence at the melt surface. The device can be extended to a multistage high shear pump by arranging individual rotor/stator assemblies either concentrically (one in another) or vertically. The device and high shear pump can be readily integrated into existing casting processes. The device is suitable for use in casting processes including high pressure die casting, low pressure die casting, gravity die casting, sand casting, investment casting, direct chill casting, twin roll casting, and any other casting process which requires liquid metal as a feedstock. In addition, the device is particularly suitable for providing conditioned liquid metal for both shape casting and continuous (or semi-continuous) casting of metallic materials, preparing high quality semi-solid slurries, solidification processing of particulate reinforced metal matrix composites, mixing immiscible metallic liquids and degassing of liquid metals prior to any casting processes.

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